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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,253	12/18/2001	Ignace Lefever	016782-0241	6060

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FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

LAWRENCE JR, FRANK M

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,253	LEFEVER ET AL.	
	Examiner	Art Unit	
	Frank M. Lawrence	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-15 and 17 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 7-9, 12-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0764455 A2 in view of Applicants' admitted prior art.
3. EP '455 discloses a filter for removing particles from high temperature gases comprising a fibrous sintered web of a metal alloy that can include 17-21% chromium, 2.5-6% aluminum, 0.02-0.25% yttrium, and the balance iron (abstract, p. 2, lines 46-59, p. 3, lines 45-49). The filter is coated with an alumina layer (p. 5, lines 10-15), is housed in a unit having endcaps (see figures 5-7), and can be tubular and arranged in multiple arrays (see figures 7, 8). The fibers can have a section of 30x15 microns and will inherently be stable at temperatures over 850° C and corrosion resistant. The alumina layer will inherently be predominantly alpha-alumina because it is formed at between 600-1000° C. The instant claims differ from the disclosure of EP '455 in that the filter is in combination with a means for the production of coal-derived gas or is used in filtration at about 1100°C.
4. Applicants' admitted prior art states that it is known that gas produced in coal-fired power generation systems requires high-temperature filtration of particulates but that no reliable filters for operating at the high temperatures are known (instant specification, p. 1-2), and that filters made from the disclosed alloys withstand temperatures of up to 1100°C. It would have

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been obvious to one having ordinary skill in the art to use the filter of EP '455 in the coal-derived gas production of the prior art in order to provide a filter for effectively removing particulates in a high-temperature, corrosive environment without degradation. The filtration of claim 17 is recognized as an intended use for the filter system and will not result in any structural difference in the recited apparatus that would distinguish over those of the prior art.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP '455 in view of Applicants' admitted prior art as applied to claim 1 above, and further in view of Delaunay et al. (5,165,899).

6. EP '455 in view of Applicants' admitted prior art discloses all of the limitations of the claims except that the filter medium has a porosity of between 60-85%. Delaunay et al. ('899) disclose a high temperature fibrous filter medium comprising Fe-Al-CR-Y fibers that are sintered and arranged with a predetermined degree of porosity (abstract, col. 2, lines 9-38). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the porosity of the filter of the prior art to be at any desired level that is effective in the filtering requirement.

7. Claim 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '455 in view of Applicants' admitted prior art as applied to claim 1 above, and further in view of Marcus et al. (4,126,560) and taken together with Mann (4,270,936).

8. EP '455 in view of Applicants' admitted prior art disclose all of the limitations of the claim except that the filter medium comprises a first layer including a mass of metal fibers with a diameter between 4-12 microns and a second layer including a mass of metal fibers with a diameter between 12-30 microns that are layered and sintered. Marcus et al. ('560) disclose a

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sintered metal fiber filter medium comprising a first layer of 25 micron fibers, a second layer of 12 micron fibers, and a third layer of 8 micron fibers with a stainless steel mesh grid sandwiched between the second and third layers on the downstream side of the second layer (figure, col. 1, lines 37-60, col. 2, lines 16-35). Mann ('936) discloses a fibrous metal filter media comprising an Fe-Al-Cr-Y alloy coated with alpha-alumina for filtering hot gases at up to 1800° F. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the filter of the prior art by arranging layers of the fibrous metal filter material as recited in order to provide a more efficient and longer lasting filter having a graded porosity for preventing larger diameter particles from blocking the flow through a lower porosity filter layer. It would also have been obvious to use a metal mesh screen that has an Fe-Al-Cr-Y composition in order to provide a known high-temperature resistant means for collecting and holding at least some of the contaminants that exit the upstream layer, giving the filter additional contaminant holding capacity.

Allowable Subject Matter

9. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed August 21, 2003 have been fully considered but they are not persuasive. Applicant argues that the EP '455 references does not inherently disclose an alumina layer formed on the surface of the filter, wherein the layer is predominantly alpha alumina. It is submitted that the teaching in the instant specification points out how the oxidation step

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disclosed in EP '455 will produce a predominantly alpha alumina layer. At page 5, line 25 to page 6, line 14 of the instant specification, it is taught that the alumina layer can be formed by preoxidation at temperatures of 1000-1200°C and more preferably at 1100-1200°C, and that "the Al-oxide formed during the preoxidation step *under the above mentioned conditions* has predominantly an alpha-structure". EP '455 discloses preoxidation at up to 1000°C, which will inherently produce a predominantly alpha-alumina coating. The examiner agrees that the filters produced in the EP '455 reference at less than 1000°C do not meet the criteria of having a predominantly alpha- coating, and also will not have almost no defects, as required in claim 16, because the preoxidation temperature would have to be at least 1100°C.

11. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation is found in the background section of the instant specification where it is stated that it is known that gas produced in coal-fired power generation systems requires high-temperature filtration of particulates but that no reliable filters for operating at the high temperatures are known. Applicant also argues that one having ordinary skill in the art would be discouraged from using the EP '455 filter for coal-derived gas because it is only disclosed as being effective at 900°C or less, while the instant filter can withstand up to 1100°C, however the actual application temperatures in the filtration of coal-derived gas is disclosed as 200-900°C

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(instant specification, pages 1-2). Also, the instant filter is used in furnace exhaust gas filtration, while the EP '455 filter is disclosed for use in the filtration of gas discharged from an "oven." It is submitted that one skilled in the art would understand that these filtration applications at a disclosed temperature of up to 900°C in both the instant specification and EP '455 are similar if not the same.

Conclusion

/s. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 703-305-0585. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 703-308-1261. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Frank M. Lawrence
Primary Examiner
Art Unit 1724

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Frank Lawrence
9-24-03